

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (Withdrawn): A method for stabilizing a valve annulus of a heart for performing a procedure on the valve annulus, the method comprising:

introducing at least a first stabilizing member beneath one or more leaflets of a valve of the heart to engage the annulus at an intersection between at least one leaflet and an interior ventricular wall of the heart; and

applying force to the first stabilizing member to stabilize the valve annulus.

Claim 2 (Withdrawn): A method as in claim 1, wherein introducing comprises passing the member beneath at least the posterior leaflet of the mitral valve of the heart.

Claim 3 (Withdrawn): A method as in claim 1, wherein applying force to the first stabilizing member exposes the valve annulus from surrounding tissue of the heart.

Claim 4 (Withdrawn): A method as in claim 1, wherein introducing comprises advancing an elongate catheter carrying the first stabilizing member through vasculature of a patient to the heart, wherein the first stabilizing member is adapted to change between a flexible configuration for introduction through the vasculature and a curved configuration to conform to the annulus.

Claim 5 (Withdrawn): A method as in claim 4, further comprising changing the shape of the first stabilizing member to conform to the annulus.

Claim 6 (Withdrawn): A method as in claim 5, wherein changing the shape of the first stabilizing member comprises articulating the stabilizing member in at least two directions.

Claim 7 (Withdrawn): A method as in claim 5, wherein changing the shape of the first stabilizing member comprises applying tension to at least a first tensioning cord to cause a first bend in the stabilizing member.

Claim 8. (Withdrawn): A method as in claim 7, wherein changing the shape further comprises applying tension to at least a second tensioning cord to cause a second bend in the stabilizing member.

Claim 9 (Withdrawn): A method as in claim 8, wherein the first bend comprises approximately a C-shaped bend to conform the stabilizing member to the annulus, and the second bend comprises an upwardly directed bend.

Claim 10 (Withdrawn): A method as in claim 5, wherein changing the shape of the first stabilizing member comprises introducing a fluid into a shape-memory stabilizing member.

Claim 11 (Withdrawn): A method as in claim 5, further comprising locking the shape of the first stabilizing member.

Claim 12 (Withdrawn): A method as in claim 1, wherein applying force to the first stabilizing member comprises applying upwardly directed force in a direction from the ventricles toward the atria of the heart.

Claim 13 (Withdrawn): A method as in claim 1, wherein stabilizing further comprises introducing at least a second stabilizing member over the valve leaflets.

Claim 14 (Withdrawn): A method as in claim 13, further comprising moving the second stabilizing member toward the first stabilizing member to further stabilize the valve annulus.

Claim 15 (Withdrawn): A method for stabilizing a valve annulus of a heart for performing a procedure on the valve annulus, the method comprising:

advancing a flexible, elongate stabilizing catheter through vasculature of a patient to the

heart;

introducing at least a first stabilizing member of the stabilizing catheter beneath one or more leaflets of a valve of the heart to engage the annulus at an intersection between at least one leaflet and an interior ventricular wall of the heart;

changing the shape of the stabilizing member to conform to the annulus; and applying force to the stabilizing member to stabilize the valve annulus.

Claim 16 (Withdrawn): A method as in claim 15, wherein changing the shape of the first stabilizing member comprises articulating the stabilizing member in at least two directions.

Claim 17 (Withdrawn): A method as in claim 15, wherein changing the shape of the first stabilizing member comprises applying tension to at least a first tensioning cord to cause a first bend in the stabilizing member.

Claim 18 (Withdrawn): A method as in claim 17, wherein changing the shape further comprises applying tension to at least a second tensioning cord to cause a second bend in the stabilizing member.

Claim 19 (Withdrawn): A method as in claim 18, wherein the first bend comprises approximately a C-shaped bend to conform the stabilizing member to the annulus, and the second bend comprises an upwardly directed bend.

Claim 20 (Withdrawn): A method as in claim 15, wherein changing the shape of the first stabilizing member comprises introducing a fluid into a shape-memory stabilizing member.

Claim 21. (Withdrawn): A method as in claim 15, further comprising locking the shape of the first stabilizing member.

Claim 22 (Withdrawn): A method as in claim 15, wherein applying force to the first stabilizing member comprises applying upwardly directed force in a direction from the ventricles toward the atria of the heart.

Claim 23 (Withdrawn): A method as in claim 15, wherein stabilizing further comprises introducing at least a second stabilizing member over the valve leaflets.

Claim 24 (Withdrawn): A method as in claim 23, further comprising moving the second stabilizing member toward the first stabilizing member to further stabilize the valve annulus.

Claim 25 (Withdrawn): A method for constricting a valve annulus in a beating heart, the method comprising:

introducing at least a first stabilizing member beneath one or more leaflets of a valve of the heart to engage the annulus at an intersection between at least one leaflet and an interior ventricular wall of the heart of the heart;

applying force to the first stabilizing member to stabilize the valve annulus; and constricting at least a portion of the valve annulus while the valve annulus remains stabilized.

Claim 26 (Withdrawn): A method as in claim 25, further comprising:

introducing at least a second stabilizing member over the valve leaflets; and moving the second stabilizing member toward the first stabilizing member further stabilize the annulus.

Claim 27 (Withdrawn): A method as in claim 26, wherein constricting comprises attaching a mechanical support structure to at least a portion of the valve annulus.

Claim 28 (Withdrawn): A method as in claim 27, wherein the mechanical support structure comprises a ring or a system of anchors and tethers.

Claim 29 (Withdrawn): A method as in claim 26, wherein constricting comprises applying energy to shrink at least a portion of the annular tissue.

Claim 30 (Withdrawn): A method for constricting a valve annulus in a beating heart, the method comprising:

introducing at least a first stabilizing member beneath one or more leaflets of a valve of the heart to engage the annulus at an intersection between at least one leaflet and an interior ventricular wall of the heart of the heart;

applying force to the first stabilizing member to stabilize the valve annulus;

securing individual anchors at circumferentially spaced-apart locations about at least a portion of the valve annulus while the valve annulus remains stabilized; and

cinching a tether through the anchors to circumferentially constrict the annulus.

Claim 31 (Withdrawn): A method as in claim 30, further comprising:
introducing at least a second stabilizing member over the valve leaflets; and
moving the second stabilizing ring toward the first stabilizing ring to further stabilize the annulus.

Claim 32 (Withdrawn): A method as in claim 31, wherein securing the anchors comprises driving the anchors from one of the first and second stabilizing members.

Claim 33 (Withdrawn): A method as in claim 32, wherein driving the anchors from one of the first and second members comprises inflating an expandable balloon in one of the members to force the anchors at least partially out of the member into tissue of the valve annulus.

Claim 34 (Withdrawn): A method as in claim 32, wherein securing the anchors further comprises driving the anchors through tissue of the valve annulus into an anchor receiving piece coupled with the other of the first and second stabilizing members.

Claim 35 (Original): A device for accessing a valve annulus of a heart, the device comprising:

an elongate body having a proximal end and a distal end; and

a first stabilizing member at the distal end of the body, wherein the first stabilizing member is positionable under one or more leaflets of a valve of the heart to engage a length of the annulus along an intersection between at least one leaflet and an interior ventricular wall of the heart.

Claim 36 (Original): A device as in claim 35, wherein the elongate body comprises a rigid shaft.

Claim 37 (Withdrawn): A device as in claim 35, wherein the elongate body comprises a flexible catheter, so that the first stabilizing member may be positioned in the heart and under the one or more leaflets via a transvascular approach.

Claim 38 (Withdrawn): A device as in claim 37, wherein the first stabilizing member comprises a shape-changing portion.

Claim 39 (Withdrawn): A device as in claim 38, further comprising at least a first tensioning cord coupled with the shape-changing portion for applying tension to the shape-changing portion to cause it to bend in at least a first direction.

Claim 40 (Withdrawn): A device as in claim 39, further comprising at least a second tensioning cord coupled with the shape-changing portion for applying tension to the shape-changing portion to cause it to bend in at least a second direction.

Claim 41 (Withdrawn): A device as in claim 40, wherein the first direction comprises approximately a C-shape for conforming to the annulus and the second direction comprises an upward or proximal direction for applying force to the annulus.

Claim 42 (Withdrawn): A device as in claim 39, wherein the shape-changing portion includes multiple notches along at least one side to control bending into a curve which conforms to the shape of the annulus.

Claim 43 (Withdrawn): A device as in claim 39, wherein the shape-changing portion comprises multiple stacked segments coupled with at least the first tensioning member to control bending into the shape of the annulus.

Claim 44 (Withdrawn): A device as in claim 38, wherein the shape-changing portion comprises a shape-memory material configured to conform to the shape of the annulus.

Claim 45 (Withdrawn): A device as in claim 44, wherein the shape-changing portion further comprises at least one lumen for introducing a fluid to cause the shape-memory material to conform to the shape of the annulus.

Claim 46 (Original): A device as in claim 35, wherein the first stabilizing member comprises:

- a semicircular housing;
- a plurality of tethered anchors disposed within the housing; and
- at least one expandable balloon for driving the plurality of anchors into tissue of the valve annulus.

Claim 47 (Original): A device as in claim 46, wherein the anchors are selected from the group consisting of curved hooks, straight barbed hooks, clips, T-shaped fasteners, helical fasteners, rings, and shape memory fasteners.

Claim 48 (Original): A device as in claim 46, further comprising at least one mandrel for releasably coupling the anchors with the housing.

Claim 49 (Original): A device as in claim 48, wherein the anchors comprise a plurality of curved hooks, and wherein the mandrel comprises a pivot mandrel around which the hooks pivot to engage annular tissue.

Claim 50 (Original): A device as in claim 46, further comprising: an inflation actuator for inflating the expandable balloon;

- a release actuator for releasing the anchors from the housing; and
- a cinching actuator for cinching a tether coupled with the tethered anchors to reduce a diameter of the valve annulus.

Claim 51 (Withdrawn): A device as in claim 46, further comprising at least a second stabilizing member movably coupled with the elongate shaft, wherein the second stabilizing member may be moved toward the first stabilizing member to further stabilize the valve annulus.

Claim 52 (Withdrawn): A device as in claim 51, further comprising at least one anchor receiving piece coupled with the second stabilizing member for receiving distal ends of the plurality of anchors driven through the tissue of the valve annulus.

Claim 53 (Original): A device as in claim 35, wherein the first stabilizing member comprises at least one deployable mechanical support structure for constricting the valve annulus.

Claim 54 (Withdrawn): A device as in claim 53, wherein the mechanical support structure comprises at least one shape memory stent couplable with the valve annulus, wherein the stent longitudinally shrinks when deployed to constrict the valve annulus.

Claim 55 (Withdrawn): A device as in claim 35, wherein the first stabilizing member comprises at least one energy delivery member for delivering energy to the valve annulus to constrict the annulus.

Claim 56 (Withdrawn): A device as in claim 55, wherein the energy delivery member comprises a radiofrequency delivery member.

Claim 57 (Withdrawn): A device as in claim 35, wherein the first stabilizing member comprises at least one drug delivery member for delivering at least one drug to the valve annulus to constrict the annulus.

Claim 58 (Withdrawn): A method for constricting a heart valve annulus comprising:
accessing a heart valve annulus from beneath one or more leaflets of a heart valve;

introducing a tethered clip assembly to the heart valve annulus, wherein the tethered clip assembly comprises a plurality of individual clips coupled to a tether;

securing the individual clips of the tethered clip assembly at circumferentially spaced apart locations about at least a portion of the heart valve annulus; and
cinching the tether to reduce the circumference of at least a portion of the heart valve annulus.

Claim 59 (Withdrawn): The method of claim 58 wherein the heart valve annulus is a mitral valve annulus.

Claim 60 (Withdrawn): The method of claim 58 performed on a beating heart.